HIGHER

8.7 Velocity Time Graphs: 10-minute Pack

EDEXCEL 1MA1 · Calculator allowed · about 10 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 A vehicle has a constant velocity of -3 m/s for 4 seconds (negative means travelling in the opposite direction). What is the displacement of the vehicle over the 4 seconds?

(Total for Question 1 is 1 mark)

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2 A velocity-time graph shows velocity increasing uniformly from 0 m/s at t = 0 s to 20 m/s at t = 10 s. Work out the acceleration.

(Total for Question 2 is 2 marks)

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3 A vehicle slows from 15 m/s to 5 m/s in 5 seconds. Calculate its acceleration.

(Total for Question 3 is 2 marks)

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4 The table gives the velocity v (m/s) of a car at different times t (seconds). t = 0: v = 3, t = 4: v = 12, t = 8: v = 9, t = 12: v = 10, t = 16: v = 14. Use trapeziums to estimate the distance travelled between t = 0 and t = 16.

(Total for Question 4 is 4 marks)

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Mark scheme · 8.7 Velocity Time Graphs: 10-minute Pack

Question 1

-12 m cao	**B1**

Answer: -12 m

Question 2

use a = change in velocity / time, (20 - 0) / 10 or equivalent	**M1**
2 m/s^2 cao	**A1**

Answer: 2 m/s^2

Question 3

use a = (v2 - v1) / t = (5 - 15) / 5 oe	**M1**
-2 m/s^2 cao	**A1**

Answer: -2 m/s^2

Question 4

strip width 4	**B1**
area of a trapezium (a + b)h/2 used	**M1**
all trapezium areas added	**M1**
158 m cao	**A1**

Answer: 158 m

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